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ABSTRACT

The factors influencing the educational-vocational pathways of Australian school-leavers were examined through a study of a representative national sample of Australian school-leavers. The study sample consisted of 2,709 pupils from the 1970 Youth in Transition cohort, who were first tested as part of the Australian Studies of School Performance in 1980 and contacted again in 1985 (when the mean age of the sample was 15.5 years). In 1991, 1,258 of the cohort responded to a follow-up survey. The educational achievements of the group were reflected in their occupational status in 1991. The percentages of respondents working in occupations by level of formal qualification required were as follows: degree, 11%; diploma, 19%; certificate/trade, 26%; and no formal educational qualification, 44%. Significant differences were found between the educational status of the 4 groups even in terms of their literacy and numeracy at age 10. The proportion of females working in occupations requiring a degree was double that of males. Fewer females worked in occupations requiring trade or certificate requirements. Rural location did not have a statistically significant impact on educational level of the occupation attained in 1991. Mixed patterns of results were found for socioeconomic status and ethnicity. (Contains 12 references.) (MN)

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Young people in transition: factors influencing the educational-vocational pathways of Australian school-leavers

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The educational achievements of a representative national sample of Australian school leavers were examined after leaving school. The study was part of the longitudinal Youth in Transition study - a national probability sample of Australian youth. There was sufficient evidence to argue that the educational and occupational achievements were related to gender, socioeconomic status, ethnicity, geographical location (rurality), completion of the highest level of secondary schooling, vocational interests in high school and even levels of literacy and numeracy in primary school. Vocational educational achievement was linked to gender (male), non-completion of year 12, and lower socioeconomic status. A tentative model of educational-vocational achievement is outlined.

People vary greatly in their educational and vocational achievements throughout the lifespan and this is a familiar phenomenon to both laypersons as well as researchers. The broad pattern of educational achievement in Australia is also changing over time and some aspects of this are indicated in Table 1. There is a major increase in the proportion of persons with degrees over the period 1991-2000 and a reduction in those who have only some primary or secondary schooling. Nevertheless, it is clear that for half the workforce, educational-vocational attainment is still directed towards no formal qualifications.

Table 1: Educational attainments of the workforce

Educational achievement	Persons 1991	%	Persons 2000	%
Degree (higher degree, graduate diploma, bachelor degree)	1,027,100	10%	1,984,500	18%
Diploma (undergraduate, associate diploma)	3,635,300	36%	1,040,800	9%
Certificate (skilled vocational, basic vocational)	(included above)		2,513,900	23%
Other (highest level of schooling, did not complete school)	5,348,000	53%	5,500,800	50%
Total	10,010,400		11,040,000	

Note: Excludes 683,700 persons aged 15-64 years still at school, 918,200 attending tertiary education in 2000, 662,500 still at school and 728,900 attending tertiary in 1991. All percentages are rounded. 1991 and 2000 figures are not comparable for diploma and certificate levels in 1991 and 2000.
Source: Australian Bureau of Statistics, Transition from Education to Work, Cat No. 6227.0, Table 9 (May 2000, p 16); Table 6 (May 1991, p 9).

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Explanations for differences in achievement vary from individual differences in ability through to educational influences or distinct social causes. Holland (1997) has listed many characteristics of the person and the environment that influence vocational development and included: age, gender, ethnicity, geography, social class, physical assets or liabilities, educational level attained, intelligence and influence (1997, p 13).

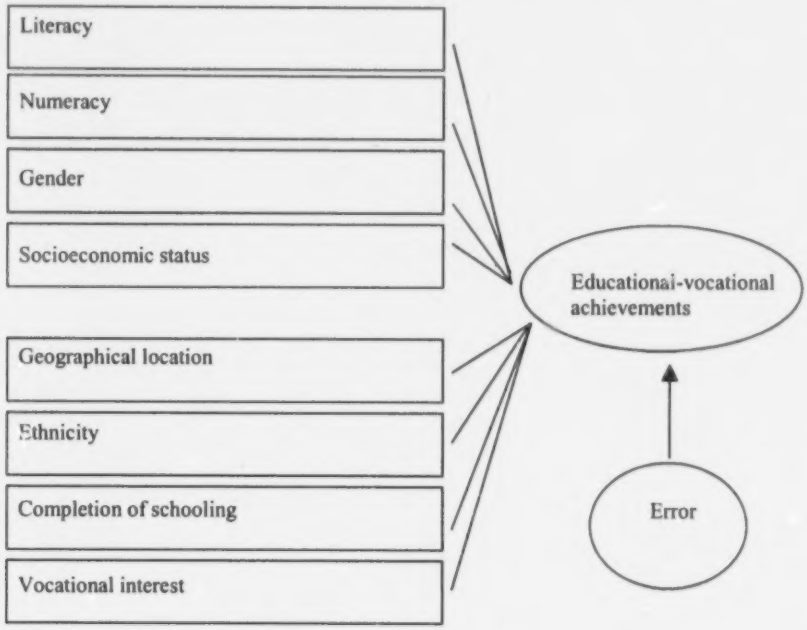
Using a broad sociological framework, Gottfredson (1981) pointed out that public factors such as gender and prestige circumscribed and compromised career choices. She outlined how many career choices are stereotyped on the basis of masculinity-femininity or desired social standing and that people often settle for less than optimal careers. While she focused mainly on the accommodations that we make in our vocational development and not exclusively on the level of educational achievement, she has reported that interest types and status can account for educational attainment and variable income levels (see Gottfredson 1996; Gottfredson and Brown 1981).

In an Australian context, Long et al (1999) developed a model of influences on educational participation. They reported that family and personal characteristics (gender, parental education and occupation, family wealth, father's country of birth, residential location) interacted with school experiences and post-school expectations (school achievement, type of school system, parent and teacher expectations, friends' plans and self-concept of ability).

The purpose of this study is to explore factors that might contribute to the initial educational and occupational pathways of Australian schoolleavers. It is a meaningful topic for investigation because of its significance for the individual, the ramifications for the community, the implications for policy makers as well as for professionals in careers guidance, education and human resource development. While educational achievement has been investigated in schools and tertiary settings, it is not always the case that the initial educational-vocational achievements of a school cohort have been followed.

Educational-vocational achievement means the typical educational requirements of an occupation (eg a degree for an electrical engineer; an associate diploma for an electronics technician; a certificate for an electrician; and no formal qualification for a trades assistant). This is a practical index or description of educational achievement in terms of the eventual occupational outcome. It is recognised, however, that in many cases some persons might achieve educational and training qualifications but not use these in their chosen occupations, or be forced to accept jobs with lesser educational requirements. On the other hand, a smaller proportion of persons might be able to pursue some less regulated occupations without having completed typical levels of qualifications.

Figure 1: A tentative model of links with educational-vocational achievements



A tentative model for initial educational-vocational attainment was proposed at the outset (see Figure 1). It is a qualitative model and not a causal or structural equation model. The emphasis is on description because many of the factors (eg gender, ethnicity, socioeconomic status) do not have the additive properties that are essential for true measurement (see Michell 1999). Finally, it is a model that operates at the initial stage of one's career and it is recognised that there are additional factors (designated as error) that influence career transitions.

The focus is on the general level of occupational attainments (degree, diploma, certificate, or no formal qualification) in the first stages of one's career. It is argued that someone's level of educational achievement may be linked to (a) a wide range of public information about the person; (b) scholastic performance in areas of literacy and numeracy; and (c) vocational interests.

Youth in Transition

This study uses the Youth in Transition data, which is an ongoing study of the vocational pathways of young Australians (see McKenzie 2000). The survey is made up of a cohort of young people born in 1970 and forms part of the Longitudinal Surveys of Australian Youth conducted by the Australian Council for Educational Research. The objective of the surveys was to indicate the main factors that affect personal, educational, vocational and social outcomes. A two-stage stratified probability sample involved a nationwide sample of schools that included government, independent and Catholic school systems. From each of these, 25 pupils were randomly selected. Participants were first contacted in schools and further data were collected by an annual mail survey over a ten-year period. The 1970 cohort is used in this study and was first assessed in 1980 and then followed up at yearly

intervals from 1985-1994. Lamb et al (1995, p 27) went so far as to say 'it represents one of the most substantial long-term studies of outcomes undertaken in Australia'. This study used the recently released data from this valuable historical database to describe key influences on one's educational achievement.

The study

Participants

The participants in this study comprised pupils (males=1436; female=1273) from the 1970 Youth in Transition cohort, who were first tested as part of the Australian Studies of School Performance in 1980. When contacted again in 1985, the mean age of the sample was 15.5 years (SD=0.3). Participants were followed up by mail annually and this study includes only those who were working full time. The numbers of participants varied from a minimum of 848 in 1985 to a maximum of 1314 in 1988 (1985 - 848; 1986 - 1086; 1987 - 1143; 1988 - 1314; 1989 - 1227; 1990 - 1132; 1991 - 1258).

Instrument

The following demographic data were obtained by questionnaire:

a) gender;
b) whether or not students completed year 12;
c) rurality at age 14 (defined in terms of population density in a local government area and categorised as quartiles, with the lowest quartile being rural and the highest quartile being urban);
d) socioeconomic status in terms of the occupation of the male parent (rated from professional to unskilled worker, based on the occupational prestige scores of the Australian National University scale of Broom et al 1977);
e) ethnicity (defined broadly in terms of father's country of birth and categorised as born in Australia, born in another English-speaking country, and born in a non-English speaking country).

The cohort had completed reading literacy and numeracy tests in their schools at age 10 as part of the Australian Studies in Scholastic Performance (see Bourke et al 1981). In 1985, participants also completed a brief vocational interest questionnaire (Ainley et al 1994; Athanasou 2001) that categorised their interests into the six Holland (1997) career categories (Realistic, Investigative, Artistic, Social, Enterprising and Conventional). Respondents were classified subsequently in terms of their highest score on one of the six career interests.

Procedure

A follow-up mail survey was used to obtain the occupation of those who were working in 1991. The occupational status of the participants was then classified as requiring a degree, diploma or associate diploma, trade qualification or certificate, or no formal educational qualification. Cross-tabulations between the four levels of educational achievement were computed with demographic factors. This was only undertaken for those persons who were working at the time of the last follow-up survey in 1991. Analysis of variance was used to determine if there were differences in the level of literacy and numeracy recorded in 1980, when the cohort was 10 years old. The differences were tested using a non-parametric Kruskal-Wallis one-way

analysis of variance on ranks because the tests of the assumptions concerning skewness and kurtosis were not satisfied.

Findings

Overall findings

In 1991 some 1258 participants responded to the follow-up survey. The educational achievements of the group were reflected in their occupational status in 1991. Just over 44% were working in an occupation that did not require a formal educational qualification (in rounded percentages: degree - 11%; diploma - 19%; certificate/trade - 26%; other - 44%). These proportions are consistent with the pattern set out in the table at the commencement of this paper for persons with a degree, but those with diploma/certificate/trade qualifications are over-represented and persons without qualification are under-represented (see Table 1).

Specific influences on educational achievement

(a) Literacy and numeracy

There were significant differences between the educational status of the four groups even in terms of their literacy (chi-square (H) =55.7, df=3, p<0.00001) and numeracy (chi-square (H) =38.4, df=3, p<0.00001) at age 10. The mean scores on literacy and numeracy for those with degrees and diplomas were higher than for those with trade certificates and other qualifications. The other qualifications group was marginally higher than the trade-certificate group for both literacy and numeracy. The reasons for this are not clear and the results are illustrated in Figure 2.

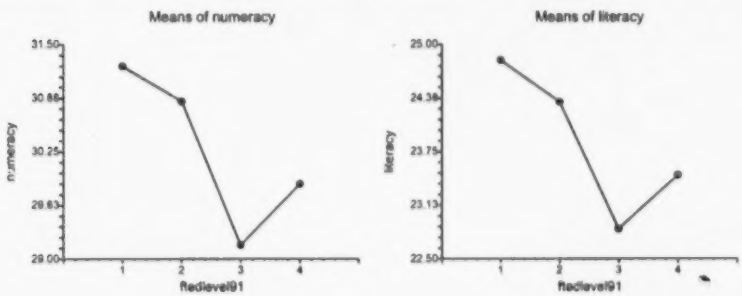


Figure 2: Plots of literacy and numeracy means scores for full-time educational level (1=degree; 2=diploma; 3=certificate-trade; 4=other)

(b) Gender

There were statistically significant differences (chi-square = 40.3, df = 3, p<0.00001) in the distribution of males (N=574) and females (N=684) across the four educational groups. The proportion of females working in occupations with a requirement for a degree was double that of males; there were more females in occupations with diplomas; less females in occupations requiring trade or certificate qualifications; and almost equal proportions in other qualifications (see Table 2).

Table 2: Cross-tabulations of qualifications with demographic factors

Qualific.	Male	Female	Yr 12	Did not finish yr 12	Urban	Rural	SES 1	SES 6	English speaking	Non-English speaking
Degree	7%	14%	16%	2%	11%	9%	12%	10%	11%	14%
Diploma	15%	22%	20%	17%	19%	16%	17%	16%	19%	13%
Trade/Cert	33%	21%	19%	37%	24%	28%	23%	35%	28%	26%
Other	46%	43%	45%	45%	47%	46%	48%	40%	42%	48%

All percentages rounded

(c) Completion of year 12

As expected, the completion of the highest level of secondary schooling (N=726) had a profound impact on achievement of degree and diploma qualifications (chi-square = 70.8, df = 3, $p<0.00001$) (see Table 2). The probability of someone who had not completed the highest level of secondary schooling working in an occupation requiring a degree was around 2%; and those who had not completed the highest level of secondary schooling were over-represented in the trade-certificate group (36.5%).

(d) Geographic location

The extent of rural location (N=239) did not have a statistically significant impact on the educational level of the occupation attained in 1991 (chi-square = 9.7, df = 9, ns). Nevertheless, there were less students from rural regions (9.2%) who achieved a degree compared with urban students (metropolitan 11.3%). On the other hand, participation in certificate-trade level occupations was higher in the rural regions. The results from only the rural and urban students are included in Table 1 for ease of presentation.

(e) Socioeconomic status

Socioeconomic status defined in terms of the father's occupation was clearly related to educational-vocational outcomes for degree and diploma levels, with the highest socioeconomic group having a higher proportion in the degree category than the lowest group. The results from only the highest and lowest socioeconomic levels are indicated in Table 2. The pattern of results differed significantly (chi-square = 27.0, df = 15, $p<0.05$) from that expected by chance, but it was not uniform. For example, participation in degree-level occupations was highest for the second socioeconomic group and participation in certificate trade-level occupations was highest for the lowest socioeconomic group.

(f) Ethnicity

The same mixed pattern of results is evident for ethnicity, with a higher proportion of students of non-English speaking backgrounds achieving at degree level (14%) than those who are Australian born and English speaking (11%). Once again, the

pattern of these results was not consistent across the groups, but it varied significantly from that expected (chi-square = 21.1, df = 6, $p<0.01$).

(g) Vocational interests

The pattern of the relationship between vocational achievement and interests was complex and reflected the nature of the labour market (chi-square = 58.0, df = 15, $p<0.00001$). For instance, in line with expectations, the proportion of tradespersons certificates was highest in the Realistic category, which encompasses the technical, outdoor, manual and mechanical occupations (see Table 3). Degree qualifications were highest in the Artistic (ie creative, literary, musical) and Conventional (ie office, computational, clerical) groups. Diploma-level qualifications were highest in the Artistic and Social (ie people contact, social service) occupational categories. The highest level of persons with no qualifications were in the Enterprising (ie business, entrepreneurial, persuasive) occupations. An anomaly in the relationship between vocational interests and achievement was found in the Scientific category, which had few persons in the degree and diploma categories. In part, this may reflect the limited vocational opportunities in Australia for persons with such interests.

Table 3: Cross-tabulations of qualifications with interest categories

Qualification	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
Degree	6%	8%	18%	14%	9%	18%
Diploma	14%	16%	27%	21%	17%	18%
Trade/Cert	36%	34%	14%	22%	17%	26%
Other	44%	44%	41%	42%	57%	39%

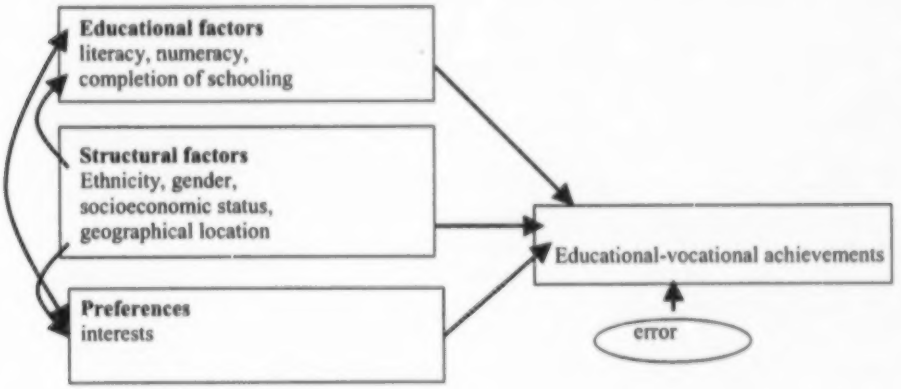
Note: All percentages are rounded

Discussion and conclusions

The variation that has been noted in educational-vocational achievements of this cohort was not random but influenced by three broad groups of factors. The first of these factors are largely beyond the control of the individual and included: gender, ethnicity, socioeconomic status and geographical location. The second group of factors were educational and included early levels of achievement in literacy and numeracy (as well as later levels of school completion). The final set of factors included the motivational influences of high school interests in vocational areas. For example, vocational education (eg apprenticeships, vocational skills) was linked to gender (male), non-completion of year 12, and a generally lower socioeconomic status and a generally higher level of Realistic interest.

There was an inevitable interaction between factors that has not been taken into account by this study. While it would have been tempting to model these influences through a causal or structural model, this was not considered valid because the factors involved are largely categorical. They do not represent quantities that can be measured precisely or in a valid manner. Nevertheless a qualitative framework can be hypothesised and this is shown in Figure 3.

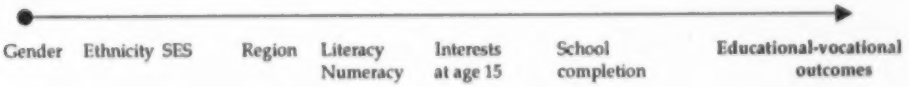
Figure 3: Factors influencing educational-vocational achievements



This model goes part of the way to accounting for the educational-vocational achievements of youth in transition, especially in the early stages of their careers. It indicates that many education and training aspects are circumscribed and compromised by one's background. In this way, it supports the contentions of Gottfredson (1996), Holland (1997) and Long et al (1999) that were described briefly at the outset. There is potential, however, for individual differences in key areas of educational achievement to influence career paths and to overcome some disadvantages. Finally, personal preferences that are expressed as career interests also exerted a strong directional force on the direction and extent of educational-vocational achievement.

Another dimension along which these factors might be plotted is that of time. Some of the factors were really quite distant from the educational-vocational achievement at age 21 years, whereas others were proximal. These can almost be plotted along a hypothetical (albeit imperfect) time dimension (see Figure 4) in which their influences accumulate over time.

Figure 4: A hypothetical time dimension for educational-vocational influences



One limitation of this study is that it was not dynamic and did not account for the national changes over time in educational achievement that reflect the transfer from school to work situations. For instance, it did not account for the creeping credentialism or the gradual increase in national educational achievements that was identified in Table 1. Nor was it helpful in predicting individual achievement, since it was essentially a description of how one nationally representative cohort developed. It may be possible to determine a table of probabilities that indicated the chance of

obtaining a particular level of educational achievement given combinations of factors, but the potential permutations of factors would be daunting. Furthermore, the data from this study are only of historical interest and may not be indicative of the latest influences and trends in educational-vocational achievement. Nevertheless the data are important as an indicator of past achievements and represent the first analysis of this nationally representative cohort since the public release of this information.

On the basis of the information from this study, it appears that the most powerful influences on ultimate educational-vocational achievement might well be (in order of effect size): literacy, numeracy, the completion of Year 12, type of vocational interest, gender, socioeconomic status, ethnicity and rurality. From a practical perspective, there is scope to identify those persons with educational potential at a relatively early age, especially those who might otherwise be disadvantaged by their background. Secondly, it is also possible to outline educational and vocational options given the pattern of interests and educational potential of a person, in order to maximise his/her success and satisfaction. Thirdly, it seems possible to plan on a large scale for ways in which to overcome some of those factors that circumscribe educational and training outcomes of youth in transition.

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References

Ainley J, Robinson L, Harvey-Beavis A, Elsworth G and Fleming M (1994) Subject choice in years 11 and 12. Canberra: Australian Government Publishing Service.

Athanasou J A (2001) Analysis of responses to vocational interest items: a study of Australian high school students. Journal of Career Assessment.

Australian Bureau of Statistics (1991/2000) Transition from education to work. Catalogue no 6227.0, May 1991 and May 2000.

Bourke S F, Mills J M, Stanyon J and Holzer F (1981) Performance in literacy and numeracy: 1980. Canberra: Australian Government Publishing Service.

Broom L, Duncan-Jones P, Jones F L and McDonnell P (1977) Investigating social mobility. Canberra: ANU Press.

Gottfredson, L S (1981) Circumscription and compromise: a developmental theory of occupational aspirations. Monograph. Journal of Counseling Psychology, vol 28, pp 545-579.

Gottfredson L S (1996) Gottfredson's theory of circumscription and compromise. In D Brown, L Brooks and Associates (eds) Career choice and development, third edition. San Francisco: Jossey-Bass, pp 179-232.

Holland J L (1997) Making vocational choices: a theory of vocational personalities and work environments, third edition. Odessa, FL: Psychological Assessment Resources.

Lamb S, Polesel J and Teese R (1995) 'Where do they go?' An evaluation of sources of data used for the monitoring of students' destinations and other educational outcomes in Australia. Commissioned Report no 40, National Board of Employment, Education and Training. Canberra: Australian Government Publishing Service.

Long M, Carpenter P and Hayden M (1999) Participation in education and training in Australia 1980-1994, longitudinal surveys of Australian youth. Report no 13. Melbourne: Australian Council for Educational Research.

McKenzie P (2000) Using longitudinal data for research on VET. Paper presented at the Third AVETRA Conference, Canberra.

Michell J (1999) Measurement in psychology. Critical history of a methodological concept. Cambridge: Cambridge University Press.

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